

Trichoscopy: Revolutionizing Hair and Scalp Diagnosis with Advanced Imaging Techniques

Kaitlin Lipner*

Department of Dermatology and Laboratory Medicine, Mazandaran University of Medical Sciences, Sari, Iran

DESCRIPTION

Trichoscopy, also known as dermoscopy of the hair and scalp, is a non-invasive diagnostic tool that has revolutionized the field of dermatology and trichology. By providing magnified images of the hair and scalp, trichoscopy allows for the detailed examination of hair shaft abnormalities, scalp disorders, and hair growth patterns. This technique has proven invaluable in diagnosing a variety of hair and scalp conditions, from alopecia areata to scalp psoriasis, and in monitoring treatment efficacy. This comprehensive analysis delves into the principles, applications, and advancements in trichoscopy.

Applications of trichoscopy

Trichoscopy has a wide range of applications in clinical practice. It is particularly useful for diagnosing different types of alopecia, scalp inflammatory diseases, and hair shaft disorders.

Alopecia

Androgenetic Alopecia (AGA): Trichoscopy can identify characteristic features of AGA such as hair shaft miniaturization, variation in hair shaft diameter (anisotrichosis), and the presence of vellus hairs. Other features include peripilar signs like brown peripilar halos and perifollicular pigmentation.

Alopecia Areata (AA): This condition is identified by the presence of yellow dots (keratotic plugs within follicular ostia), exclamation mark hairs (short hairs with tapered proximal ends), and black dots (broken hairs at scalp level). Additionally, tapered hairs, cadaver hairs, and short vellus hairs are often observed.

Telogen Effluvium (TE): Trichoscopy of TE typically shows a predominance of telogen hairs with intact hair follicles. The scalp appears to have a diffuse reduction in hair density without significant perifollicular changes.

Scarring alopecia: Conditions like Lichen Planopilaris (LPP) and Discoid Lupus Erythematosus (DLE) show specific features such as perifollicular scaling, white dots (fibrotic white dots indicating loss of follicular openings), and dilated blood vessels.

Early scarring alopecias may also exhibit follicular hyperkeratosis and perifollicular erythema.

Inflammatory scalp diseases

Psoriasis: Trichoscopy reveals red dots and globules, twisted red loops, and diffuse scaling. It can also show the absence of specific follicular patterns associated with alopecia.

Seborrheic dermatitis: Characterized by yellowish scales, perifollicular scaling, and diffuse erythema. The scales are usually greasy and loosely attached.

Contact dermatitis: Presents with features like vesicles, pustules, and diffuse erythema. It often shows areas of scalp erosion or excoriation.

Hair shaft disorders

Monilethrix: This genetic condition shows beaded hair shafts with periodic constrictions along the length of the hair.

Trichorrhexis nodosa: Characterized by frayed or broken hair shafts with white nodes along the length, indicative of hair fragility.

Pili torti: Shows twisted or flattened hair shafts, often associated with congenital disorders.

Advancements in trichoscopy

Recent advancements in trichoscopy have expanded its diagnostic capabilities and applications. Digital trichoscopy and trichoscopic imaging software allow for the storage, comparison, and detailed analysis of trichoscopic images over time, facilitating monitoring of disease progression and treatment response.

Digital trichoscopy: Digital trichoscopy involves the use of high-resolution cameras and computer software to capture and analyze trichoscopic images. This technology enables precise measurement of hair density, hair diameter, and hair growth patterns. It also allows for longitudinal studies by comparing

Correspondence to: Kaitlin Lipner, Department of Dermatology and Laboratory Medicine, Mazandaran University of Medical Sciences, Sari, Iran, E-mail: lipnkat@gmail.com

Received: 22-Feb-2024, Manuscript No. HTT-24-31502; **Editor assigned:** 26-Feb-2024, PreQC No. HTT-24-31502 (PQ); **Reviewed:** 13-Mar-2024, QC No. HTT-24-31502; **Revised:** 20-Mar-2024, Manuscript No. HTT-24-31502 (R); **Published:** 27-Mar-2024, DOI: 10.35248/2167-0951.24.14.245

Citation: Lipner K (2024) Trichoscopy: Revolutionizing Hair and Scalp Diagnosis with Advanced Imaging Techniques. J Hair Ther Transplant. 14:245.

Copyright: © 2024 Lipner K. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

images over multiple visits, providing a reliable method to assess treatment efficacy.

Automated trichoscopy: Automated trichoscopy systems utilize Artificial Intelligence (AI) and machine learning algorithms to analyze trichoscopic images. These systems can identify and quantify various trichoscopic features, offering an objective assessment of hair and scalp conditions. Automated trichoscopy has the potential to standardize diagnosis, reduce observer variability, and enhance diagnostic accuracy.

Limitations of trichoscopy

Despite its many advantages, trichoscopy has some limitations. The technique requires expertise and experience to interpret the findings accurately. There is also variability in the interpretation of trichoscopic features, which can lead to diagnostic inconsistencies. Furthermore, trichoscopy may not always distinguish between similar-looking conditions, necessitating complementary diagnostic methods such as biopsy or laboratory tests.